

simple. The organs in the abdominal cavity were very difficult to distinguish because of the blending of their red colors.

Book Reviews

All unsigned reviews were made by the Editor.

Biology

LABORATORY EXERCISES IN THE PRINCIPLES OF BIOLOGY, Thomas R. Mertens and Jeanette C. Malayer, 124 pp., Burgess Publishing Co., Minneapolis, Minnesota, 1966.

The explosive growth of knowledge in the biological sciences and the related efforts in the area of curriculum development, particularly at the secondary and elementary school levels, is beginning to affect the teaching of biology in the colleges. All but the most insensitive instructors in freshmen courses have become embarrassingly aware that the classical laboratory approach, built on demonstration and verification, is a distinct let-down for students accustomed to a more dynamic approach. This is the experience of students who have taken BSCS or BSCS-influenced courses in the better high schools. In many institutions, however, the task of providing college level laboratory experiences, as dynamic as these high school courses and characterized by the spirit of inquiry, poses numerous problems with which the inexperienced instructor (the one too frequently assigned to beginning courses) finds it difficult to cope. He is often hampered by increasing enrollments, restricted operational budgets, and modest facilities. Most of the available laboratory manuals available to him for beginning courses are either hopelessly traditional, or they present activities which demand costly equipment and elaborate preparations.

It is encouraging to note that this book offers a means of making the laboratory program of a two-quarter or one-semester course in beginning biology interesting and meaningful on a modest budget. Influenced by the BSCS and CUEBS efforts and attitudes, the authors have produced a manual in which the exercises are straightforward, easy to follow, and should encourage an inquisitive attitude on the part of the student.

Although I personally do not like the workbook format and wish that the exercises had been made open-ended, I appreciate the authors' attempt to build the activities around thought-producing problems. Of course, a few minor criticisms, of which one or two examples will suffice, can be leveled at a number of the exercises. In Exercise I, on the use of the microscope, I find unnecessarily awkward the

method described for estimating true size of an observed object. For a dollar, a simple eyepiece micrometer can now be purchased from at least one biological supply house. By the use of this micrometer, an object can be measured directly and rapidly in microns, eliminating the need for more complicated methods of estimating true size. If a simple micrometer is not available, the diameter of the low-power field of view of most microscopes can be measured directly with a plastic rule and thereafter used to estimate actual size of objects with surprising accuracy. In another exercise, I notice the term protoplasm is still employed as designating living substance. The authors might have simply talked about the chemical constituents of cells rather than employing this out-dated concept. Similar minor modifications could be suggested at places throughout the manual, but in general, it is one which should find wide acceptance.

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Botany

PLANT DIVERSIFICATION, Theodore Delevoryas, 145 pp., \$2.25, Holt, Rinehart and Winston, Inc., New York, 1966.

A paperback in the publisher's *Modern Biology Series* and this one devoted to an evolutionary history of plants. This implies a heavy emphasis on paleobotany; yet the author carefully weaves this knowledge into current morphological information in such a way as to present quite a coherent and smooth reading account of the evolution of plants. Absent are the many pictures so traditional in this type of treatment and fresh ones have been substituted.

Chapters take up algae, fungi (achlorophyllous), vascular plants, flowering plants, and a paleobotanical summary. There has been no reduction of terminology.

This is an interesting book on aspects of plants which are often relegated to backs of general texts or in brief introductory statements. A fine reference.

ABOUT PLANTS, Topics in Plant Biology, F. C. Steward, 174 pp., \$2.95, Addison-Wesley Publishing Company, Reading, Massachusetts, 1966.

Paperback by a well-known plant physiologist and dealing with this subject. The author indicates he dictated the manuscript, but the wealth of detailed information rather belies this statement if it were a casual dictation. The illustrations are superb, especially the diagrams. Of course, there is an index and bibliography.